DIVISION OF
Forensic Sciences

The Division of Forensic Sciences (DOFS) provides scientific support to criminal justice agencies, enabling them to detect, apprehend and prosecute criminals by utilizing accurate, useful and timely laboratory analysis and testimony. Except for limited services provided by local and federal laboratories, DOFS crime laboratories are the only forensic services available to the criminal justice community of Georgia.

DOFS
Personnel

The Division of Forensic Sciences (Georgia State Crime Laboratory) was formed by legislative Act in 1952. The laboratory had five full-time staff members who processed 651 cases that year. In FY'04, DOFS was authorized 281 scientists, technicians, support staff, and administrative personnel. Despite carrying an average of 40 vacancies, principally due to budget shortfalls, DOFS produced more than 88,144 reports.

The individual caseload for scientists remains high, but the overall case production of DOFS has fallen well short of the demand for services. The result is a greatly increased backlog over the previous year. The backlog is expected to be in excess of 36,000 cases by the end of FY'05. DOFS is in the process of evaluating the services provided and will be instituting changes in FY'05 that will maximize resources available to the lab.

Regional Crime Labs

- Central Regional Lab, Macon
- Northeast Regional Lab, Cleveland
- Coastal Regional Lab, Savannah
- Eastern Regional Lab, Augusta
- Headquarters Lab, Decatur
- Northwest Regional Lab, Summerville
- Southwest Regional Lab, Moultrie
- Western Regional Lab, Columbus

Command Staff

Dan Kirk
Deputy Director

DOFS Operations

Dr. George Herrin
Assistant Deputy Director

DOFS Operations

Karen Scott
Assistant Deputy Director

FY'04: DOFS Cases Worked

Forensic Biology	3,433
CODIS Database	10,560
Chemistry	36,394
Firearms	4,343
Latent Prints	1,253
Questioned Documents	369
Toxicology	28,189
Trace Evidence	466
Medical Examiner	3,137
Total	**88,144**

LABORATORY Services

DOFS provides scientific support to the criminal justice system in Georgia. Using the most recent technologies and highly sophisticated equipment, lab scientists and technicians in specialized disciplines collect, analyze and interpret all aspects of physical evidence for law enforcement and prosecutors through the state. They also offer expert testimony on their findings.

FIREARMS SECTION

The Firearms Section ended the fiscal year with a backlog of 249 cases. During the fiscal year a significant backlog of cases accumulated in the Gunshot Residue service. Computer hard drive and subsequent software changes and problems associated with the Scanning Electron Microscope/Energy Dispersive X-ray (SEM/EDX) contributed to the backlog. These problems have been corrected and it is anticipated that the backlog will be eliminated during the next fiscal year.

The National Integrated Ballistic Information Network

DOFS Operations

Mark Maycock
Assistant Deputy Director

Med. Examiner's Operations

Dr. Kris Sperry
Chief Medical Examiner

Med. Examiner's Operations

Scott Roberts
Assistant Deputy Director

(NIBIN) group within the firearms section is presently operating with a substantial backlog of test bullets and cartridge cases awaiting entry on the IBIS computer. The backlog has been gradually increasing for the last two fiscal years due to a lack of staffing.

Firearms services at the Eastern Regional Laboratory (Augusta) has ceased due to the departure of the resident examiner. Cases normally worked by the Eastern Laboratory are being worked by other regional laboratories. Forensic firearms examination support is available at all regional laboratories except for the Eastern Regional Laboratory and the Southwestern Regional Crime Laboratory in Moultrie.

On July 14, 2003, the Firearms Section moved into their newly-renovated wing of the Headquarters Laboratory. The addition of a shooting tank room, a small range, individual laboratories, and work areas for all personnel are just a few of the improvements the renovation project provided.

IMPLIED CONSENT

Implied Consent provides training in the operation of the Intoxilyzer 5000 for the chemical testing of drivers suspected of being under the influence of alcohol. The section administers the quality control and assurance programs for Georgia's breath alcohol testing program.

In FY'04, 40 Intoxilyzer basic certification classes were held at the Georgia Public Safety Training Center (GPSTC), training 1,122 law enforcement personnel representing 262 different agencies. Among these agencies are the Georgia State Patrol, the Department of Natural Resources, and the federally-funded Police Corp. Thirty-two Intoxilyzer 5000 recertification classes were conducted at seven regional training centers throughout FY'04.

Overall, Georgia has approximately 9,000 certified Intoxilyzer 5000 operators to administer tests to persons arrested for driving under the influence (DUI) of alcohol, operating a boat under the influence of alcohol (BUI), and other alcohol-related offenses. Georgia police agencies purchased approximately 20 new Intoxilyzer 5000 instruments during FY'04, bringing the number of certified instruments in the state to more than 500 statewide. Currently approximately 520 agencies actively participate in the GBI Implied Consent breath alcohol testing program.

Crime Lab Disciplines

Drug Identification

Analyzes and identifies suspected narcotics and other controlled substances as well as paints and accelerants.

Forensic Biology/DNA

Detects, identifies, and individualizes biological fluids. The section also maintains a computerized database called CODIS, (COmbined DNA Index System) that stores the DNA profiles of convicted sexual offenders and felons in Georgia. Evidence from all types of cases can be searched on the database to see if matches can be found and suspects identified.

Pathology

Performs autopsies to determine cause and manner of death in criminal and coroner cases.

Toxicology Section

Isolates and identifies drugs and poisons in human tissues.

QUESTIONED DOCUMENTS

The Questioned Documents Section of the laboratory completed 369 cases for the fiscal year 2004. In addition to the examination of financial documents, such as suspected forged checks, Questioned Documents examiners continue to make substantial contributions to the criminal justice system. During the past year, assistance was provided to law enforcement agencies throughout the state investigating such crimes as identity theft, handwritten school bomb and death threats, extortion, drug cases, Medicaid fraud, witness intimidation, theft by public officials, and murder.

Testimony was also provided at trial in various homicide and conspiracy to commit murder cases.

In a Gwinnett County drug case, a potentially damaging witness moved to an undisclosed location to avoid being found by the defendants she was going to testify against. One of the defendants rented a post office box and sent an anonymous certified return receipt envelope to the witnesses' old address. The post office returned the envelope as undeliverable but did provide the defendant with the witnesses' new address. The witness was subsequently murdered by other defendants involved in the case. The author of the envelope, who was identified by crime lab handwriting experts, was tried and convicted of conspiracy to commit murder.

In a cold case, law enforcement authorities in Arizona stopped an individual and searched the driver's glove box. The authorities discovered a notebook that contained a handwritten confession/suicide note admitting to an unsolved double homicide in Walker County. The individual was extradited to Georgia to stand trial. Testimony was provided at trial by laboratory personnel that the defendant prepared the handwritten note confessing to the murders. The defendant was convicted predominantly on that testimony.

FORENSIC PHOTOGRAPHY

The Forensic Photography Section of the laboratory has completely entered the digital age with a total revamping of its operation. All of the antiquated processing equipment was replaced with a state-of-the-art digital mini-lab capable of printing any format of digital media. The section is also capable of converting traditional film images to digital formats. This conversion has given the imaging specialists the tools to remain current with technology. It will also permit better, more efficient capture of evidence imaging, processing and enhancement – all necessary in the analysis of physical evidence by crime lab scientists.

Crime Lab Disciplines

Firearms Identification

Compares bullets and cartridge cases to the firearms from which they were fired; utilizes the National Integrated Ballistics Identification Network (NIBIN), monitored by the Bureau of Alcohol, Tobacco and Firearms (ATF).

Latent Prints

Collects, preserves, identifies, and compares fingerprints from crime scenes and physical evidence utilizing the Automated Fingerprint Identification System (AFIS).

Trace Evidence

Examines evidence, including fibers, hairs, glass, shoe and tire impressions, and other forms of trace evidence, assisting in determining if a suspect was present at a crime scene.

A significant contribution by the staff of the Forensic Photography Section during the fiscal year was their participation in the documenting and processing of more than 6,000 digital photographs for credentials for the security staff assigned to the G-8 conference at Sea Island. Photographers traveled throughout the state and to South Carolina over a several month period to assist in this project.

TOXICOLOGY

The Toxicology Section provides analysis of biological materials for alcohol, drug, and poison content. These samples may originate from either the state's Implied Consent Law or the Post-mortem Death Investigation Act. The section's toxicologists also assist during trials and hearings by providing professional, expert testimony, statewide.

In FY'04, the section completed 28,189 requests. This represented a 15 percent reduction in case volume versus FY'03. Due to vacancies being held, backlogs in this section grew to approximately 1,200 cases. Additional resources are planned for this section which should eliminate the backlog during FY'06. The National Institute of Justice (NIJ) awarded DOFS with a research grant in the amount of $407,451. The funds went to purchase, install and institute toxicology testing on a new LC-MS-MS system. This is only one of a handful of these instruments in the world dedicated solely to forensic toxicology analysis. Once standard analytical conditions are worked out and validated for the instrument, in excess of 107 drugs may be analyzed in a sample the size of two drops from standard eye dropper. This technology will, undoubtedly, change the way forensic toxicology is done in the 21st Century, both in terms of amount of sample required, the amount of pre-analytical processing needed, and personnel resources needed to perform the analysis. The confidence shown by the NIJ in the staff or the DOFS is only the most current example of the ability and willingness of DOFS scientists to employ technology to solve current and projected problems facing the laboratory.

Crime Lab Disciplines

Questioned Documents

Using a variety of techniques, the service examines and compares documents for possible forgery. It also determines if a suspect is linked to documents key to an investigation.

Forensic Photography

Processes and prints crime scene photographs.

Implied Consent

Administers the state's breath alcohol testing program and provides training on the use of breath alcohol testing instruments.

TRACE EVIDENCE

Trace Evidence provides identifications, comparisons and analysis of hair, fibers, paint, plastic, glass, footwear, tire impressions, fractured materials, and other miscellaneous materials. Forensic analysis, interpretation, and courtroom testimony of scientists assigned to this unit play a critical role in the investigation and prosecution of serious/violent crimes such as homicide, sexual assault, armed robbery, kidnapping and burglary. The timely analysis of trace materials is critical to the successful apprehension and prosecution of criminals.

Trace Evidence currently has a backlog of approxi-

mately 150 violent criminal cases. The current average turn-around time for requests is approximately six months for cases involving the analysis of hair, fiber, glass, and impressions. There is a nine-month delay for paint, plastic, and fracture matches. This backlog will continue to grow until the lab is able to fill the vacant scientist positions in the section.

Throughout the year, Trace Evidence provided investigative leads to agencies. Some of these investigative leads included vehicle year, make, model, and color as determined from paint left on the clothing of hit-and-run victims; brand/model of tires and footwear as determined from impressions left at crime scene; and race of suspects as determined from hair left at the scene.

LATENT PRINTS

The Latent Prints Section of the Crime Lab collects, preserves, identifies, and compares fingerprints from crime scenes and physical evidence. The unit also interfaces with the Automated Fingerprint Identification System (AFIS), a database that houses fingerprints of persons who have been arrested in Georgia.

In FY'04, the section processed 1,253 requests with an on-time rate of 91.17 percent (30 days or less). The section consists of three certified latent print examiners.

CHEMISTRY/DRUG IDENTIFICATION

The Chemistry Section received 44,957 requests for drug identification in FY'04. Unfortunately, during this time period, the backlog grew to more than 17,000 cases. The main reason for the backlog was the inability to fill 16 vacant positions, 14 in the Headquarters' laboratory and two in the regional labs.

FY'04: Meth submissions

2001	3,076
2002	4,529
2003	5,211
2004	6,938

Note: Statistics are based on a fiscal year calendar (July 1-June 30).

The Chemistry staff performed 467 fire debris services during the fiscal year compared to last year's total of 400 – a 14 percent increase.

Chemistry has worked to meet the needs of law enforcement agencies by providing additional resources to address the increased number of clandestine methamphetamine laboratories seized in Georgia. The Clandestine Laboratory Response Team (CLRT) continues to respond to these dangerous sites statewide on a 24-hour/seven-day-a-week basis. Clandestine laboratory responses by the DOFS Clandestine Laboratory Response Team were 99 in FY'04.

For the second consecutive year, efforts to restrict illegal methamphetamine production in clandestine laboratories within the state of Georgia resulted in new legislation enacted by the 2004 Georgia General Assembly. This legislation controlled the number of pseudoephedrine tablets, commonly used in methamphetamine production. This new legislation stated possession of 300 or more tablets or nine grams or more of powder containing pseudoephedrine was now defined to be a felony.

During the fiscal year, the staff members of the Chemistry Section increased its assistance in the training of Georgia law enforcement officers. The two-day class provides officers who successfully complete the training with the ability to test leafy material for the presence of marijuana and present their findings in court.

FORENSIC BIOLOGY/DNA

In FY'04 backlogs of casework and offender DNA testing grew significantly. By year-end, the casework backlog was more than 1,200, with most of those consisting of sexual assault cases. The offender backlog grew to more than 4,700. The section reported more than 3,400 cases and 10,560 offender profiles were added to the DNA database or CODIS (Combined DNA Index System).

By the end of FY'04, the total number of samples in CODIS was 85,315. The breakdown of that number was 81,456 offenders and 3,859 casework samples. "Offender hits" are matches where an unsolved case is linked to a convicted offender. "Forensic hits" are matches between cases that link a common perpetrator whose identity may or may not be known. In FY'04, seven forensic hits and 69 offender hits were obtained.

Since the offender law expansion in 2000, a majority of the offender hits made have involved rape cases. For FY'04, 47 percent of the hits involved burglaries and 41 percent involved rapes. The top three groups of offenders involved in these hits were incarcerated for burglary, theft, and drug offenses.

ENVIRONMENTAL COMPLIANCE

Safety, Health and Environmental Compliance has faced several challenges this fiscal year, including safety and security, respirator training, chemical hazards, and bloodborne pathogen exposure.

One of the largest projects this year was providing respiratory protection for GBI agents assigned to the G8 Summit. Medical evaluations, respirator fit testing, and training were provided for more than 300 GBI agents. This office, in conjunction with the Personnel Office, the Medical Examiner's Office, and the Investigative Division assisted with this task.

Chemical hazards associated with suspected clandestine methamphetamine laboratories were studied. Safety procedures for handling anhydrous ammonia, lithium and other clan lab evidence were given to GBI agents, DOFS chemists and laboratory technicians. New air monitoring devices were procured and distributed to employees responding to clan lab sites. These devices have the ability to perform monthly calibrations, ensuring that the units are ready for use in the field. The units also have data collection and retention features, allowing GBI to monitor employee or bystander exposure during the investigation.

The GBI procured Automated External Defibrillators (AEDs). Used in the event of sudden cardiac arrest, the AED will increase the victim's chance of survival. These were distributed to all GBI work units. Accidents and injuries remain a concern. Incidents reported to this office were cuts (15), falls (5), lifting injuries (5), repetitive motion injuries (1), chemical exposure injuries (2), other events (3). Ten of the cuts involved bloodborne pathogen exposures. Due to the serious consequences of this type of accident, all DOFS personnel received training regarding correct procedures. Employees are encouraged to use cut resistant gloves; however, in at least one case this protective equipment did not prevent exposure.

Safety audits have been used to identify risks and hazards. These inspections make sure that the GBI is in compliance with federal and state regulations. The Safety, Health and Environmental Compliance program will continue to emphasize accident prevention and training to ensure a safe workplace.

INFORMATION
Management

Fiscal year 2004 was a year of stabilization in the area of information management. The laboratory information management system (LIMS) underwent only one major software upgrade during the year. Upon staff suggestions, the upgrade implemented several changes related to data review and retrieval. The web site used for the dissemination of official reports continued to be a success. New servers were installed at all seven laboratory sites to improve the storage capacity and speed of the LIMS system. Several dozen replacement computers were installed for users to enhance their ability to perform their job functions. DOFS continued to be a leader in the area of information management with several laboratories, including the FBI laboratory, visiting the Headquarters facility to gather information to be used in implementing their own systems.

QUALITY
Systems

The Division of Forensic Sciences continues to maintain a comprehensive quality assurance system that allows our laboratory to meet all of the requirements of two accrediting bodies. DOFS has been accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB) since 1999 and the ISO 17025 General Requirements for the Competence of Testing and Calibration Laboratories since 2001. For two years prior to achieving ISO 17025 recognition, the Division of Forensic Sciences was accredited to ISO 9002 standards. The GBI Division of Forensic Sciences is unique in that it is the first forensic lab in the United States to be accredited to both ISO 17025 and ASCLD/LAB standards.

During FY'04, the Western and Central laboratories achieved ASCLD/LAB accreditation in the Firearms discipline. In October of 2004, all laboratories within the Division of Forensic Sciences were involved in an ISO 17025 assessment audit. Following the assessment, all laboratories within the system achieved reaccreditation to this international standard.

FACILITY
Improvements

With increasing workloads at the GBI Division of Forensic Sciences laboratories, renovations, upgrades, and construction of new modern laboratory facilities were needed to keep pace with demand. The final two facilities are nearing completion and should be occupied by late 2004. Each of these facilities, one located in Moultrie and one located in Cleveland, will provide modern laboratory facilities to meet the regional needs.

New laboratories to replace existing obsolete buildings are on schedule:

- A toxicology and morgue addition to the Southwestern Regional Crime Laboratory in Moultrie is scheduled for completion in November 2004.
- The Northeastern Regional Crime Laboratory in Cleveland is the newest laboratory and is scheduled for completion in September 2004.

The total forensic laboratory system will soon have eight locations strategically located throughout the state, with more than 250,000 square feet of modern scientific space.